

REMARKS

Claims 21-24 and 26-27 are pending in this application. Applicant thanks the Examiner for taking the time to discuss the application. As discussed, the limitations from previously submitted Claim 25 has been written into independent form as Claim 21. Reconsideration of the rejection in view of the above amendments and the following remarks is respectfully requested.

I. THE CLAIMS ARE PATENTABLE OVER KHOSHEVIS, U.S. PATENT No. 5,656,230

Claims 21-25 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,656,230 to Khoshevis (hereinafter "Khoshevis"). This rejection is respectfully traversed.

Claim 21 have been amended to include the limitations from previously submitted Claim 25 to clarify the distinction between the present invention and Khoshevis. The support for the claim amendment is found in Paragraph 0051 of the Specification ("rate of travel of the head and the rate of extrusion of the fiber reinforcement are coordinated with the rate of cure of the resin...so that the material remains in position at the point of extrusion").

Khoshevis does not teach or disclose coordinating the rate of cure with the rate of travel of the extrusion head and the rate of extrusion of the fiber reinforcement so that material is maintained in position at the point of extrusion. The extrusion in Khoshevis must be malleable to allow the necessary element of a side trowel to provide the desired shape ("The fabrication apparatus may be produced with only one trowel, a side trowel which provides the desired shape, smoothness and accuracy for the side surface

of the rim" Column 5, Lines 49-52 and "The extruded material from nozzle 42 preferably is a paste, while the material from nozzle 31 preferably is a liquid." Column 5, Lines 6-8). Because the extruded material must be shaped by the trowel, it can not be maintained in position at the point of extrusion because the material is necessarily moved by the trowels after it is extruded. If the extruded material was not malleable, the side trowel could not provide the desired shape. Khoshevis does not teach any embodiment that does not use at least one trowel ("The fabrication apparatus may be produced with only one trowel...However, the preferred embodiment utilizes both a top trowel and a side trowel" Column 5, Lines 49-56). It would be improper to combine Khoshevis with another reference to teach this limitation because Khoshevis does not contemplate or suggest extruding the material in the desired position. Khoshevis envisions the trowels as necessary to generate a smooth surface and therefore must also shape the extruded material ("Since the surface geometry in the new method is controlled by smooth trowels...Column 7, Line 67 – Column 8, Line 1). Therefore, if the trowels are shaping the material, the material cannot be maintained in position at the point of extrusion.

Further, Khoshevis does not teach coordinating the rate of cure with the rate of travel of the extrusion head and the rate of extrusion. There is absolutely no mention in Khoshevis of a rate of cure, only that a means for solidifying the extruded material could be included. The curing means is not significant because Khoshevis teaches using the trowels to define the shape and does therefore does not envision using the curing process to extrude the material in its desired position. The Office Action suggests that if the rate of cure was not sufficient that the structure would not maintain the weight of the

added layers. Even if true, the present claim cites that the rate of cure be coordinated to extrude the material in position at the point of extrusion, not after the object has been shaped with the trowel. There is a significant difference between the curing rate required to extrude the material in position and one where the object has time to be moved into position before the material is cured. Further, Khoshevis teaches away from the language of coordinating the rate of extrusion by describing as an advantage that the rate of extrusion can vary and is not significant because the trowels define the shape of the object. ("Therefore, regardless of the variations in the rate of extrusion, the outer and top sides of the extruded wall will be accurately controlled by the trowels. This allows for a less accurate and less expensive extrusion machine..." Column 6, Lines 51-54). Khoshevis does not teach or suggest this type of coordination between the rate of cure, the rate of extrusion, and the rate of movement of the head. In addition, it would not be proper to combine Khoshevis with another reference to teach this limitation because Khoshevis would not function if these limitations were introduced. The trowels would not be able to shape an already cured material into its desired position.

The present invention uses no trowels because the extruded fiber reinforcement is extruded in its desired position. The trowels described by Khoshevis act as a moving mold that shapes and forms the part. The present invention renders this type of containment and shaping unnecessary.

Khoshevis is forced much like the prior art to build upon contiguous sequential layers because the resin that is extruded must be formed into its finished shape. The distinction between the prior art and the present invention is that the material is

extruded in the present invention into its final shape. While Khoshevis does teach solidifying the material using a variety of means including ultraviolet radiation, Khoshevis necessarily teaches this occurring after the shape of the material has been formed using the trowels described. Khoshevis teaches away from the present invention by using the trowels to form the shape of the desired part.

Thus, nothing in Khoshevis discloses, teaches, or suggests the novel method of hardening a fiber reinforced resin as it is extruded using a curing radiation. Whereas the present invention uses the movement of the extrusion head to create the shape of the desired part, Khoshevis expressly teaches only using trowels in connection with the extrusion head to form the shape of the desired part.

Claims 26 and 27 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Khoshevis. Applicant submits for the reasons submitted above that Khoshevis does not teach the claimed process.

For at least the reasons set forth above, Applicants respectfully submit that Khoshevis fails to disclose, teach, or suggest the invention as claimed by Applicants. Applicants respectfully request that the Examiner reconsider, withdraw the rejection, and allow the appended claims at an early date.

V. CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that the claims of the present invention, define subject matter patentable over the references cited by the Office and that the application is in condition for allowance. Should the Office believe that anything further is desirable to place the application in better condition for allowance, the Office is invited to contact Applicants' undersigned attorney at the below listed telephone number.

The Commissioner is hereby authorized to charge any deficiency or credit any overpayment to deposit account number 03-2469. Moreover, if the deposit account contains insufficient funds, the Commissioner is hereby invited to contact Applicant's undersigned representative to arrange payment.

Respectfully submitted,

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